

Back and Poquoson Rivers TMDL Implementation Plan Development

First Public Meeting

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Hampton Roads Planning District Commission

October 22, 2014

Public Meeting Agenda

- TMDL and Implementation Plan Process Overview
- TMDL Review
 - Impaired waters
 - Source assessment
 - Load allocations
 - Required reductions
- Public Participation
- Best Management Practices
- Implementation Plan Development Schedule

What is a TMDL?

A TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards.

$$\text{TMDL} = \text{Sum of WLA} + \text{Sum of LA} + \text{MOS}$$

Where:

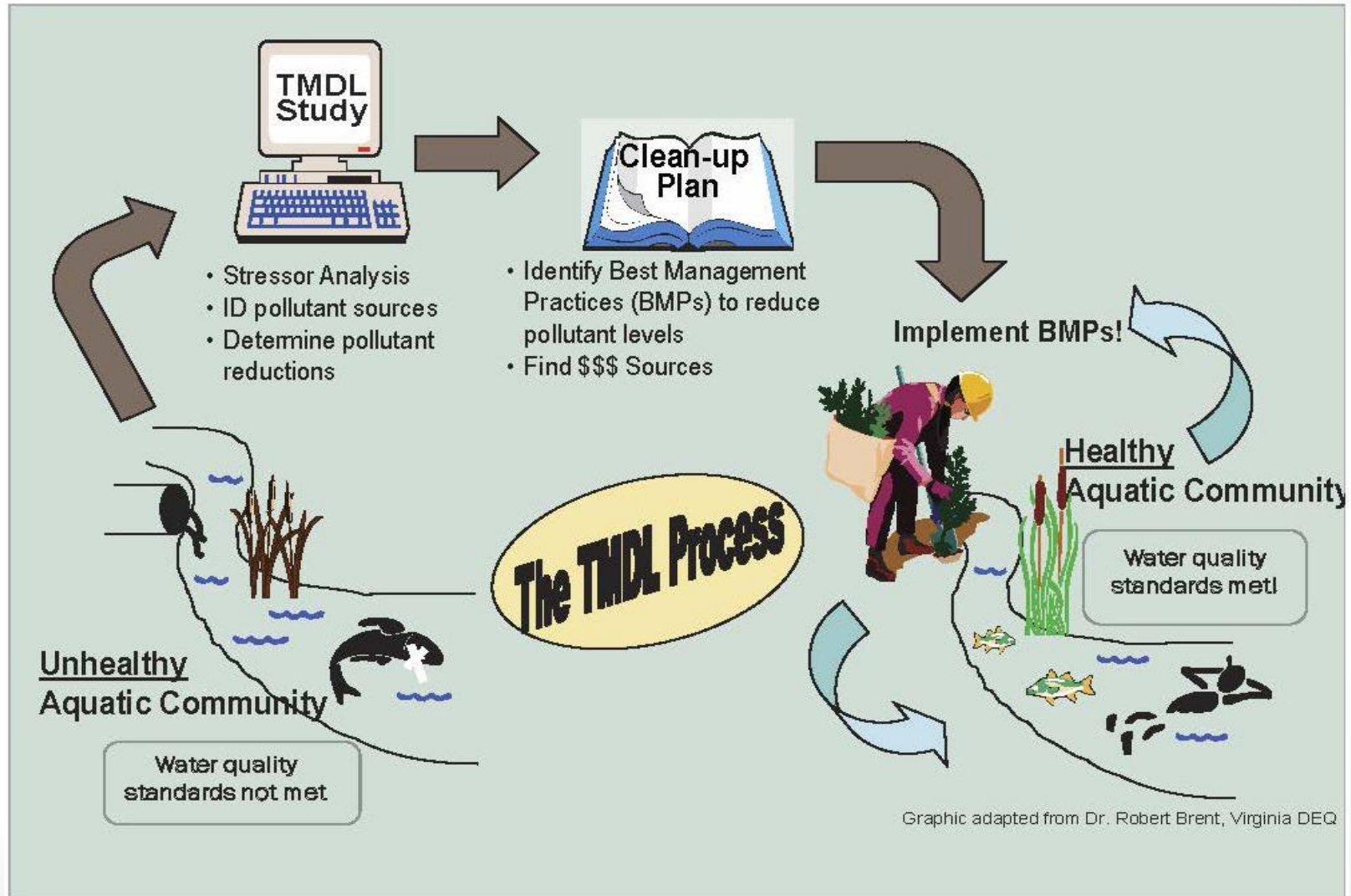
TMDL – Total maximum daily load

WLA = Waste load allocation (point sources)

LA = Load allocation (non-point sources)

MOS = Margin of safety

TMDL Process



TMDL and Implementation Process

- TMDL – identifies **how much pollutant has to be reduced** to attain water quality standards
- Implementation Plan (IP) – explains **how to make the reductions**

Guidance Manual for Total Maximum Daily Load Implementation Plans



*The Commonwealth of Virginia:
Department of Conservation and Recreation
Department of Environmental Quality*

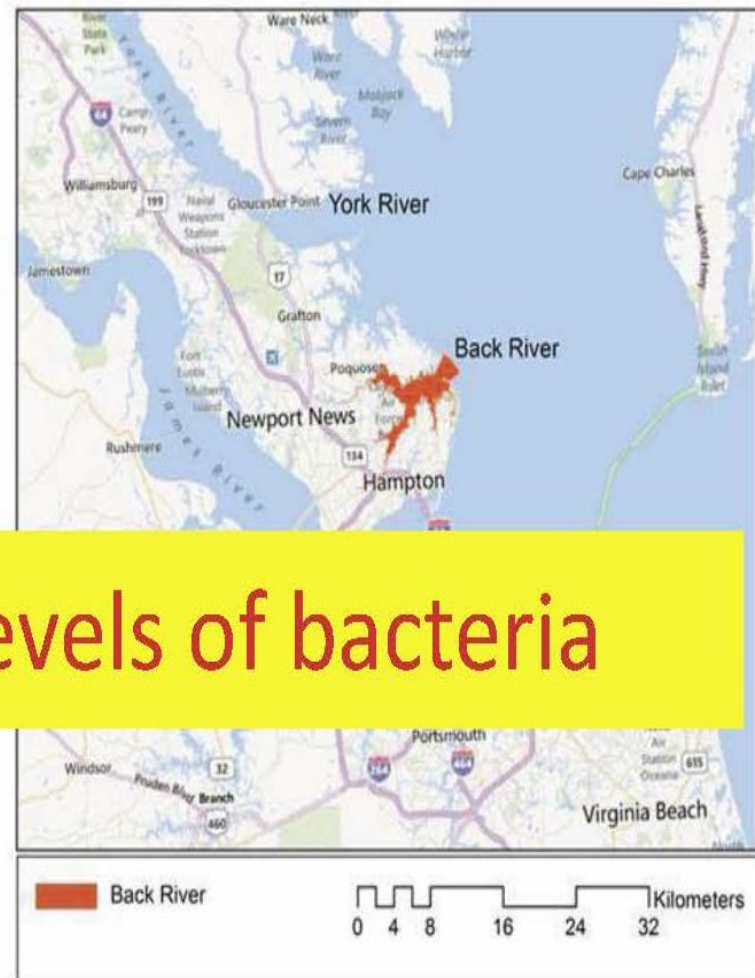
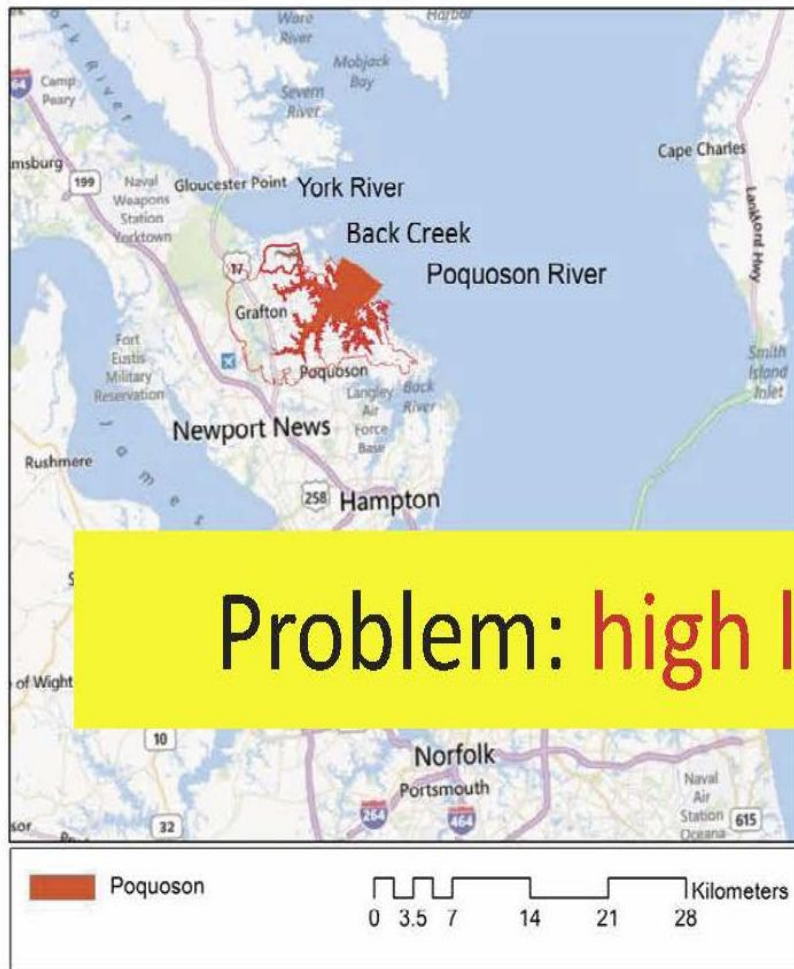
July 2003

Bacteria TMDL Overview – Water Quality Criteria

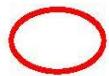
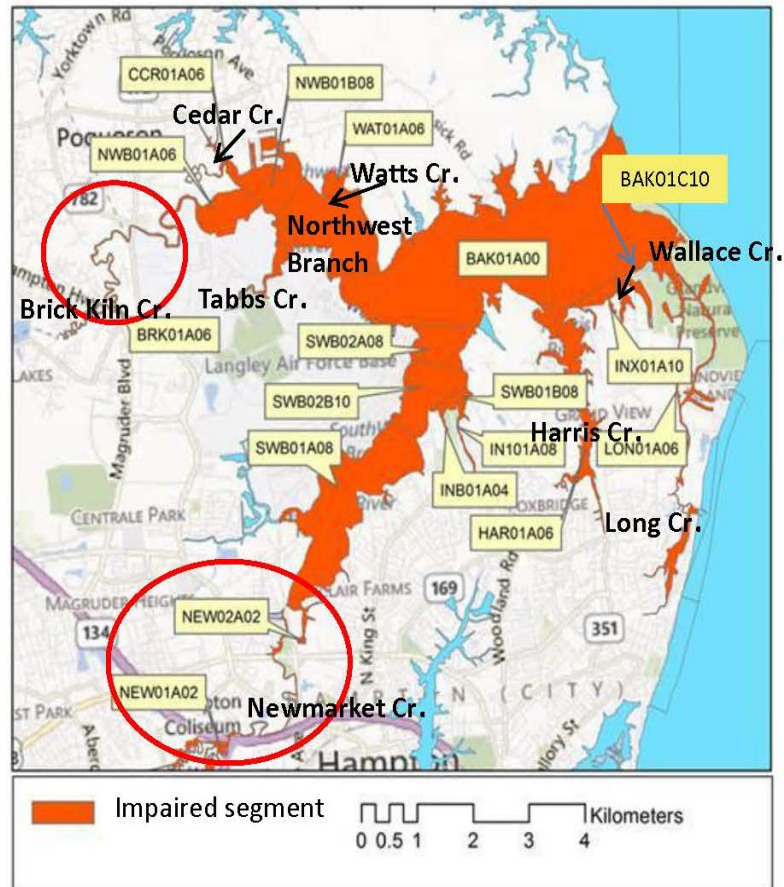
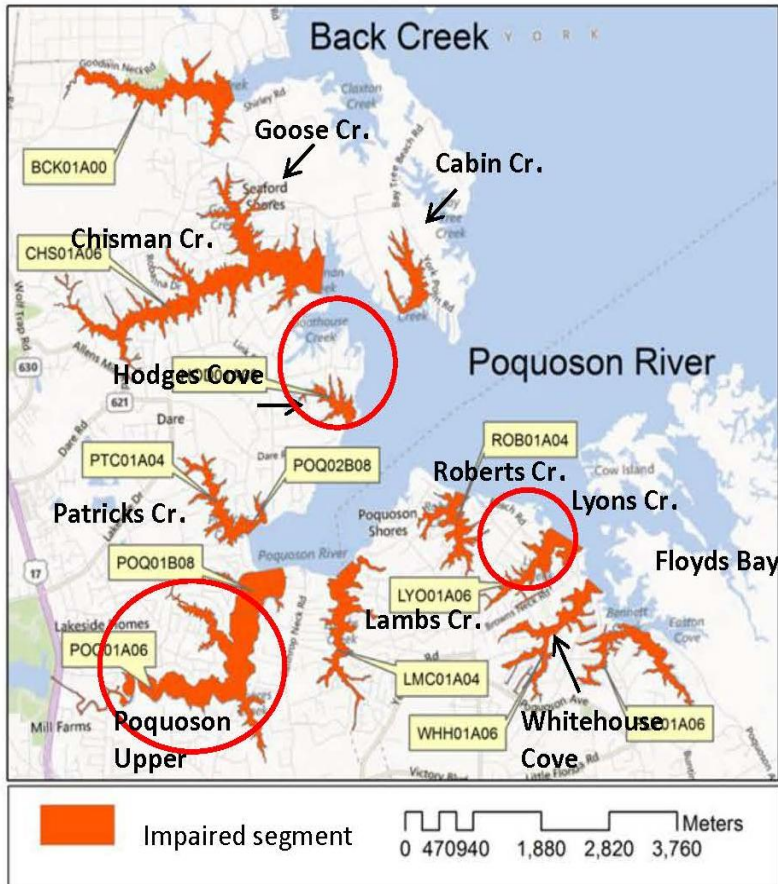
Water Type		Criteria
Class II (tidal water)	Fecal coliform	Geomean 14 counts/100ml 90 th percentile: 49 counts/100ml
Class III (freshwater)	Enterococci (salt water)	Geomean 35 counts/100ml Single Sample Max. 104 counts/100ml

The endpoints were based on the designated uses of shellfish harvesting and recreation uses with respect to each listed area. For waterbodies impaired by both pathogens, the more stringent criterion (90th percentile) applies.

Back and Poquoson Rivers Impaired Waters



Impaired Waters



Enterococcus

Sources

Total Loading Estimation

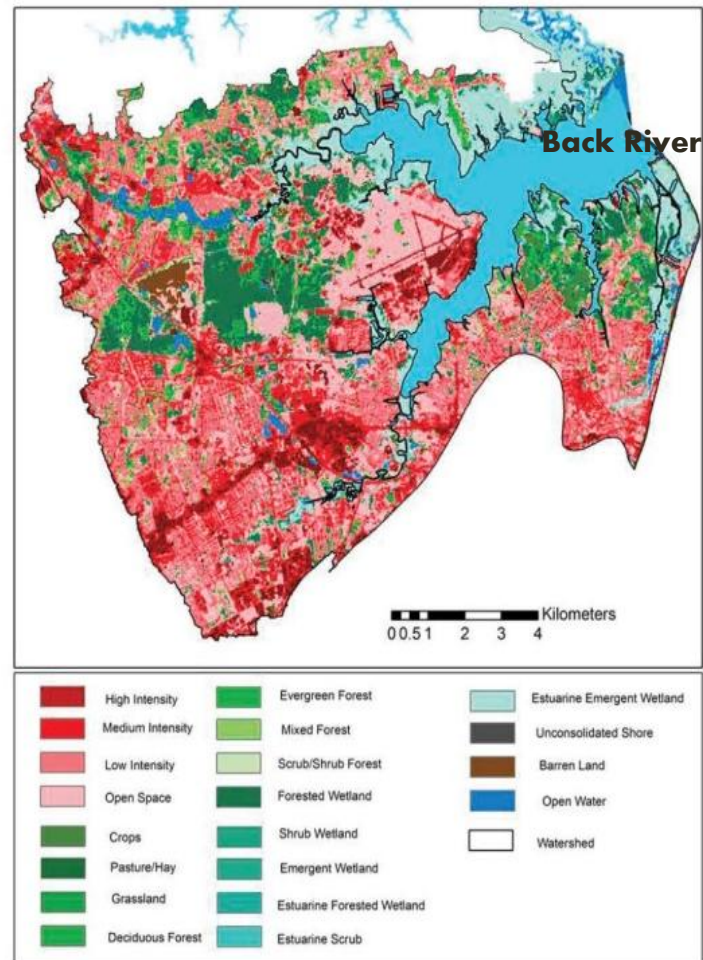
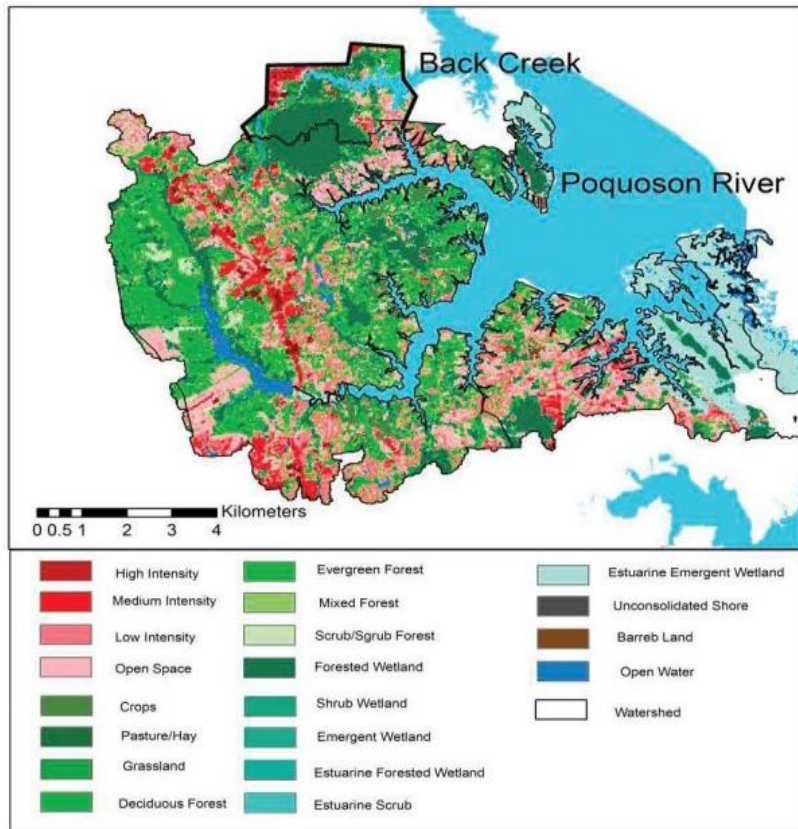
Poquoson River

Source	Animal	Number	Counts/Day	% of Total
Wildlife	Deer	1673	8.367E+11	5.6%
	Ducks/Birds	13708	8.328E+12	55.6%
	Muskrat	456	1.141E+11	0.8%
	Nutria	1045	2.612E+11	1.7%
	Raccoon	867	1.084E+11	0.7%
	Total Wildlife	17751	9.648E+12	64.4%
Pets	Dogs	3784	3.560E+12	23.8%
Septic		1023 (tanks)	8.788E+09	0.1%
SSOs			7.453E+11	5.0%
Livestock			7.866E+11	5.3%
Marinas		579 (slips)	2.316E+11	1.5%
Totals			1.498E+13	100.0 %

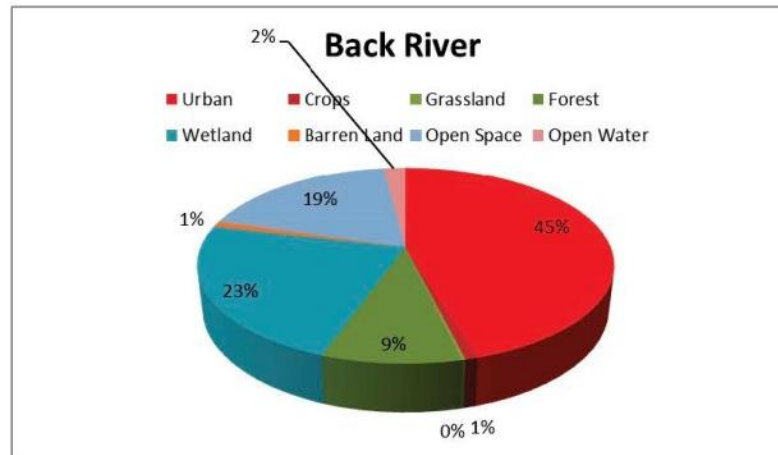
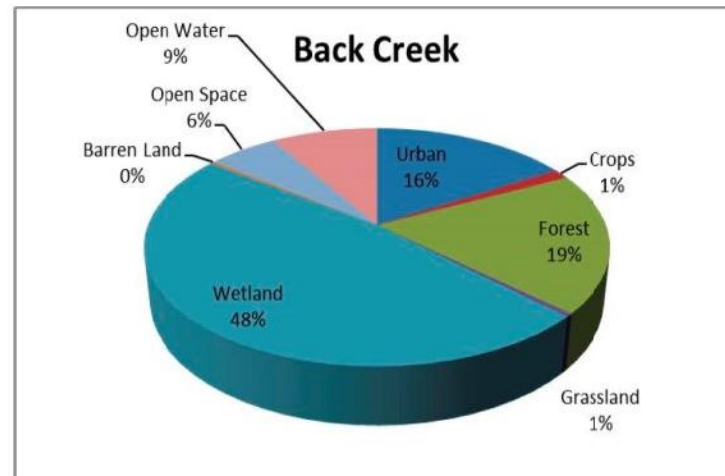
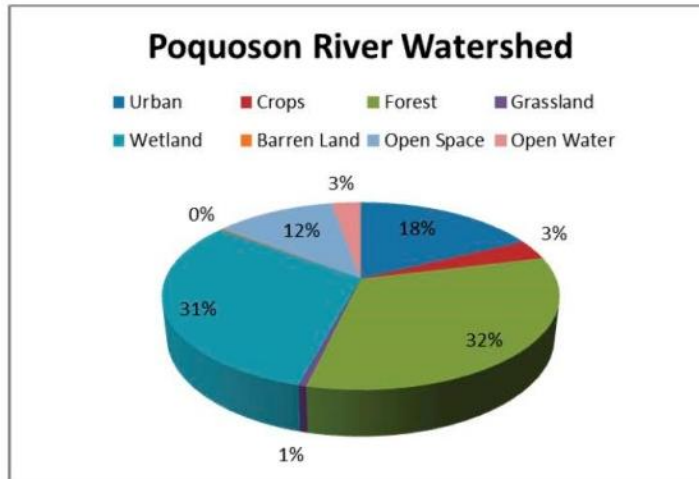
Back River

Name	Number	Loading (Counts/Day)	Percent
Deer	3,788	1.89E+12	4.3
Dog	16,064	1.51E+13	34.6
Ducks/Birds	31,031	1.89E+13	43.2
Musk rats	1,013	2.53E+11	0.6
Nutria	2,321	5.80E+11	1.3
Raccoons	1,123	1.40E+11	0.3
SSOs		2.68E+12	6.1
Septic	613	5.27E+09	0.0
Marinas	306	1.84E+11	0.4
Livestock		3.92E+12	9.0
Totals		4.36E+13	100.0

Land Use (2006 data)



Land Use Distribution



Required Reductions by Segment - Poquoson River and Back Creek

List ID	Name	Current Load (Counts/Day)	Allowable Load (Counts/Day)	Reduction (%)
VAT-C07E_LMC01A04	Lambs Creek - Poquoson River	1.67E+12	5.84E+11	65.0
VAT-C07E_PTC01A04	Patricks Creek - Poquoson River	1.00E+11	4.52E+10	55.0
VAT-C07E_ROB01A04	Roberts Creek - Upper	7.31E+10	5.33E+10	27.0
VAT-C07E_WHH01A06	White House Cove - Bennet Cr. Area	6.10E+11	3.42E+11	43.9
VAT-C07E_POQ01A06	Poquoson River - Upper [TMDL- CD]	1.30E+12	7.84E+11	39.5
VAT-C07E_CHS01A06	Chisman Creek-Upper & Goose Cr	1.30E+12	6.09E+11	53.3
VAT-C07E_HOD01A08	Hodges Creek - Upper	4.31E+11	1.73E+11	60.0
VAT-C07E_LYO01A06	Lyons Creek - Upper (DSS_06- IR)	1.11E+11	7.22E+10	35.0
VAT-C07E_FLY01A06	Floyds Bay	2.18E+11	1.38E+11	36.8
VAT-C07E_CAB01A08	Cabin Creek - Upper	2.29E+11	1.37E+11	40.0
VAT-C07E_POQ01B08	Poquoson Upper downstream POQ01A06	4.19E+10	1.38E+10	67.1
VAT-C07E_POQ02B08	Unnamed Cove @Crane	1.38E+10	6.20E+09	55.0
Sum		6.10E+12	2.96E+12	51.5

Required Reductions by Segment - Back River

List ID	Name	Current Load (Counts/Day)	Allowable Load (Counts/Day)	Reduction (%)
VAT-C07E_LON01A06	Long & Grunland Creeks	5.39E+12	9.69E+11	82.0
VAT-C07E_INX01A10	Unnamed Inlet - Back R South Shore near Wallace Cr	7.53E+10	1.04E+10	86.2
VAT-C07E_HAR01A06	Harris River	8.65E+12	1.04E+12	88.0
VAT-C07E_IN101A08	DSS Inlet #1 - Unnamed Inle	1.09E+12	8.81E+10	91.9
VAT-C07E_WAT01A06	Watts Creek -	8.98E+10	6.47E+10	28.0
VAT-C07E_INB01A04	DSS Inlet #2 - Unnamed Inlet S. Shore of SW Br.	7.46E+10	7.46E+09	90.0
VAT-C07E_NEW01A02	Newmarket Creek - Upper	2.32E+12	1.25E+12	46.2
VAT-C07E_NEW02A02	Newmarket Creek – Lower	2.63E+12	1.39E+12	47.3
VAT-C07E_SWB01A08	SW Br Back River - Incl Tides Mill Cr	3.77E+12	2.10E+12	44.2
VAT-C07E_SWB02B10	SW Br Back R - DSS OPEN	4.99E+12	2.24E+12	55.1
VAT-C07E_SWB02A08	Southwest Br. Back River - Mouth	5.36E+12	2.53E+12	52.7
VAT-C07E_SWB01B08	SW Br Back River - Outside DSS Inlet #1 & #2	1.16E+12	9.55E+10	91.8
VAT-C07E_BRK01A06	Brick Kiln Creek	1.63E+12	4.76E+11	70.7
VAT-C07E_CCR01A06	Cedar & Topping Creeks	2.34E+11	1.29E+11	44.9
VAT-C07E_NWB01A06	Northwest	1.71E+12	5.53E+11	67.7
VAT-C07E_NWB01B08	Northwest Br. Back River - Upper	2.12E+12	7.98E+11	62.4
VAT-C07E_BAK01A00	Mainstem Back River	2.34E+13	5.89E+12	74.9

Load Allocations

- There are no permits to discharge fecal coliform in Poquoson River and Back River
- There are MS4 permits held within both watersheds. Waste loads (WL) are allocated to MS4 based on percent of urban landuse within MS4 area
- Consider future development, 1% of TMDL is allocated to future growth (FA)
- The rest of loading is allocated to nonpoint source (LA)

Reduction of Potential Sources

Waterbody Name	Category	Current Load (Counts/Day)	Percentage	Allowable Load (Counts/Day)	Reduction Needed (%)
Poquoson River	Wildlife	3.10E+12	65.54	2.89E+12	6.8
	Pets	1.07E+12	22.62	0.00E+00	100.0
	Livestock	2.34E+11	4.94	0.00E+00	100.0
	Septic	2.61E+09	0.06	0.00E+00	100.0
	SSO	2.21E+11	4.68	0.00E+00	100.0
	Marina	1.03E+11	2.18	0.00E+00	100.0
	Total	4.73E+12	100.0	2.89E+12	39.0
Back Creek	Wildlife	3.36E+11	79.44	3.36E+11	0.0
	Pets	8.65E+10	20.47	4.55E+10	47.4
	Livestock	3.39E+08	<1	0.00E+00	100.0
	Septic	7.71E+07	<0	0.00E+00	100.0
	SSO	0	0	0	
	Marina	0	0	0	
	Total	4.22E+11	100	3.81E+11	9.8

*Loads include both WLAs and LAs

Waterbody Name	Category	Current Load (Counts/Day)	Percentage	Load Allocation (Counts/Day)	Reduction Needed (%)
Back River	Livestock	7.69E+11	9	0.00E+00	100%
	Wildlife	5.30E+12	62	5.30E+12	1%
	Human (SSO, Septic, Marina)	5.13E+11	6	0.00E+00	100%
	Pets	1.96E+12	23	5.69E+10	99%
	Total	8.54E+12	100	5.35E+12	37%

Annual Point Source Reductions

Waterbody Name	Jurisdiction	Existing Counts/Year	TMDL Counts/Year	Reduction
Poquoson River	City of Poquoson	2.85E+14	1.64E+14	42.4%
	York County	5.30E+14	3.32E+14	37.3%
	Sum	8.16E+14	4.97E+14	39.1%
Back Creek	York County	8.36e+13	7.54e+13	9.8%

Back River

Jurisdiction	Existing Load (Counts/Year)	Allowable Load (Counts/ Year)	Reduction (%)
City of Newport News	7.08E+13	5.84232E+13	17.5
City of Hampton	1.08E+15	6.48353E+14	40.0
City of Poquoson	1.57E+14	9.83012E+13	37.5
York County	7.76E+13	6.06757E+13	21.8
NASA	7.09E+12	7.08877E+12	0.0
Total	1.39E+15	8.72842E+14	37.3

Implementation Plan Development

- Address LAs (WLAs will be addressed in Bay TMDL Action Plans)
- Identify Changes in Watershed since TMDL
- Target Human Sources
- Identify Ongoing/Planned Source Reduction Activities
- Identify and Select Future Management Actions
- Evaluate Progress and Effectiveness of Actions

Who is Involved with IP Development?

- Hampton Roads Planning District Commission (HRPDC)
- City of Poquoson
- York County
- City of Hampton
- City of Newport News
- VA Department of Environmental Quality
- VA Department of Health
- Local Stakeholders

What is Included in an Implementation Plan? 9 critical elements for 319

- Identify sources quantitatively
- Reductions needed
- Identify management measures needed and where they should be in the watershed
- Identify assistance needed (technical and financial) and sources
- Public outreach and participation
- Implementation schedule
- Establish measurable milestones
- Establish interim targets
- Monitoring program

Implementation Plan Development

- Involve Local Stakeholders
 - Public meetings
 - Working groups
 - Steering committee
- Review and update data from TMDL Study
- Integrate watershed plans or other planning activities within the watershed
- Evaluate existing programs
- Identify existing and planned remediation activities (BMPs)

Best Management Practices to Reduce Bacteria

Wildlife



Violators will be subject to \$25.00 fine.

Per: Town of Yarmouth Department of Natural Resources.



Residential and Commercial

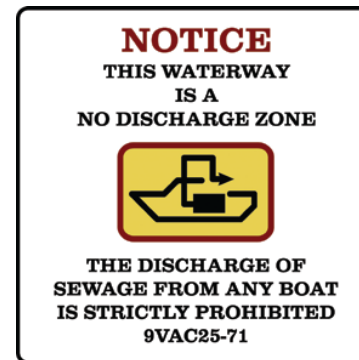


Best Management Practices to Reduce Bacteria

Urban Stormwater



Boating



Livestock exclusion



Relationship with Bay TMDL Action Plan

- Poquoson and York County - MS4 Phase II permit holders
- Newport News and Hampton - MS4 Phase I permit holders
- In regulated area, specific BMPs to be listed in the Bay TMDL Action Plan
- For sources in the unregulated areas, the BMPs will be described in the IP
- During IP process, work with localities to identify non-regulated areas

Potential Funding Sources

- EPA Section 319 Funds
- Water Quality Improvement Fund
- State Revolving Loan Funds
- Local Government Funds
- Private Funds

Tentative Schedule

- Oct – Public Meeting
- Nov/Dec – Stakeholder Meeting
- Feb/Mar– Draft Implementation Plan
- April – Final Public Meeting
- May – Implementation Plan to DEQ